

## CLAIMS

What is claimed is:

1        1. A method of allocating a trace array from a cache memory, comprising:  
2        dividing said cache memory into a reduced-size cache memory and a trace array;  
3        permitting storage of trace signal data into said trace array; and  
4        permitting retrieval of said trace signal data from said trace array.

1        2. A method as defined in Claim 1 wherein said reduced-size cache memory  
2        is equal in size to said trace array.

1        3. A method as defined in Claim 1 wherein said reduced-size cache memory  
2        is not equal in size to said trace array.

1        4. A method as defined in Claim 1 wherein said cache memory is 512K bytes  
2        in size.

1        5. A method as defined in Claim 1 wherein at least one of said cache  
2        memory and said reduced-size cache memory is organized in eight-way associativities.

1        6. A method as defined in Claim 1 wherein said cache memory comprises a  
2        directory array.

3        7. A method as defined in Claim 6 wherein said directory array comprises an  
4        address field having a spare bit usable in a trace mode to represent a high order bit of a  
5        requested address.

1           8.     A method as defined in Claim 1, further comprising:  
2     detecting a trace mode.

1           9.     A method as defined in Claim 1 wherein said cache memory is comprised  
2     by a system-on-chip environment.

3           10.    A method as defined in Claim 1 wherein the combination of said  
4     reduced-size cache memory and said trace array comprises a split cache spanning the  
5     addressable space of said cache memory.

1           11.    A method as defined in Claim 1 wherein the permitted retrieval of said  
2     trace signal data from said trace array is configured as a broadside output from said trace  
3     array.

1           12.    A method as defined in Claim 1 wherein the permitted retrieval of said  
2     trace signal data from said trace array is configured as a compartmentally selected output  
3     from said trace array.

1           13.    A method as defined in Claim 1 wherein said reduced-size cache memory  
2     and said trace array are each associated with a separate output bus.

1           14.    A method as defined in Claim 1, further comprising:  
2     characterizing a self-timed interconnect using said trace array; and  
3     switching back to the original cache functionality once characterization is  
4     complete.

1           15. A method as defined in Claim 14, further comprising:  
2           at least one of multiplexing and time-sharing said self-timed interconnect signals  
3           with other signals to be stored in said trace array.

1           16. A storage medium encoded with a machine-readable computer program  
2           code for allocating a trace array from an original cache memory, said storage medium  
3           including instructions for causing a computer to implement a method comprising:  
4           dividing the cache memory into a reduced-size cache memory and a trace array;  
5           permitting storage of trace signal data into said trace array; and  
6           permitting retrieval of said trace signal data from said trace array.

1           17. A computer data signal for allocating a trace array from an original cache  
2           memory, said computer data signal comprising code configured to cause a computer to  
3           implement a method comprising:  
4           dividing the cache memory into a reduced-size cache memory and a trace array;  
5           permitting storage of trace signal data into said trace array; and  
6           permitting retrieval of said trace signal data from said trace array.

1           18. A cache memory comprising:  
2           means for dividing said cache memory into a reduced-size cache memory and a  
3           trace array;  
4           means for permitting storage of trace signal data into said trace array; and  
5           means for permitting retrieval of said trace signal data from said trace array.